



# UNITED STATES PATENT AND TRADEMARK OFFICE

*Handwritten signature/initials*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/716,653	11/20/2000	Eric R. Alling	50807	8386
21874	7590	08/28/2006		
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205				
			EXAMINER FERNANDEZ RIVAS, OMAR F	
			ART UNIT 2129	PAPER NUMBER

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/716,653

Applicant(s)

ALLING ET AL.

Examiner

Omar F. Fernández Rivas

Art Unit

2129

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. This Office Action is in response to an amendment entered June 2, 2006 for the patent application 09/716,653 filed on November 20, 2000.
2. The Office Actions of March 2, 2006, March 29, 2004 and November 25, 2003 are fully incorporated into this Final Office Action by reference.

### ***Status of Claims***

3. Claims 1-14 have been canceled. Claims 15, 27, 28, 34 and 35 have been amended. Claims 15-36 are pending on this application.

### ***Information Disclosure Statement***

4. The information disclosure statement has not been filed for this application. To comply with 37 CFR 1.98(a)(1), the following is required: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement.

Art Unit: 2129

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 15-25 and 28-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Skaaning et al (US Patent #6,535,865, referred to as **Skaaning**).

**Claim 15, 28 and 34**

Skaaning anticipates a system for diagnosing a fault (**Skaaning**: abstract, L1-2, C5, L32-33; a troubleshooter is a system for diagnosing faults or problems in a system) the system comprising:

a knowledge base including a plurality of fault diagnoses and fault symptom queries, wherein each said fault symptom query includes potential responses and images that correspond to the potential responses (**Skaaning**: C6, L1-9; C8, L1-25; C8, L66-67, C9 L1-16; C35, L9-12; C43, claims 1 and 2; Figs. 1,2 and 4; the information stored on each node is a knowledge base with information on their respective functions (indicator node, cause node or troubleshooting node). The pictures presented to the user must be related to the

Art Unit: 2129

suggestions or responses given by the troubleshooter so that the user can make his selection);

a decision tree module including a decision tree having a plurality of decision points each corresponding to one of the fault symptom queries and a plurality of resolution points each corresponding to one of the fault diagnoses, wherein each said potential response in the decision tree indicates one of the decision points or one of the resolution points and one of said decision points is identified as a starting decision point (**Skaaning**: C5, L5-24; C8, L1-16; C25, L23-67, C26 L1-2; Figs. 1,5,8,9,10A-10E and 11; a Bayesian network is a decision tree module, decision points are nodes in the Bayesian network, queries are the questions made on each troubleshooting step and resolution points are the suggested actions to solve the problem which are stored in nodes in the network);

a user interface module in communication with said decision tree module, said knowledge base and a user access device (**Skaaning**: C8, L1-22; Figs. 1 and 2; a video display is a user interface module and the customer PC is a user access device), said user interface module including instructions to implement a method comprising:

designating the starting decision point as the next decision point (**Skaaning**: C25, L1-67, C26, L1-2; C33: 19-67, C34 L1-2; Figs. 6-9, 10A-10E and 11; designating the starting decision point as the next decision point is performed by the interactions between the arcs of the net when the tree is being searched to find a solution to the problem);

Art Unit: 2129

transmitting the fault symptom query corresponding to the next decision point to the user access device (**Skaaning**: C8, L1-16, C8, L26-31; Fig. 3, Fig. 12; providing suggestions to the user is transmitting fault symptoms queries corresponding to each decision point);

receiving a reply including one of the potential responses (**Skaaning**: C35, L5-36; Fig. 12; a reply is the suggestion made by the troubleshooter);

continuing said transmitting the fault symptom query and receiving a reply until said one of the potential responses indicates one of the resolution points, wherein if said one of the potential responses indicates one of the decision points then said one of the decision points is designated as the next decision point (**Skaaning**: C35, L5-36; Fig. 12; the process iterates until a solution is found.

Asking questions designate another decision point);

transmitting the fault diagnosis corresponding to said one of the resolution points to the user access device (**Skaaning**: C8, L1-16; Fig. 1; the user's PC is the user access device); and

receiving all of the resolution points and comparing the fault to illustrative images associated with each of the resolution points in order to traverse the decision tree (**Skaaning**: C6, L1-9; C35, L9-12; Fig. 12; EN: the system must receive all of the actions or questions (resolution points) in order to search the Bayesian network to guide a user to solve a problem. Graphical images are used to guide the user to find a solution to the problem).

Art Unit: 2129

**Claim 16 and 29**

Skaaning anticipates the fault diagnoses include diagnostic images (Skaaning: C6, L1-9; C35, L9-12; illustrations of the problems are diagnostic images).

**Claim 17 and 30**

Skaaning anticipates the fault diagnoses include a description of the fault (Skaaning: C27, L34-67; C28, L1-49; Figs. 7-8; the suggestions provide a description of the fault).

**Claims 18 and 31**

Skaaning anticipates the fault diagnoses include a likely cause of the fault (Skaaning: C5, L5-16; C8, L1-16; C27, L34-67, C28, L1-49; the suggestions present a likely cause of the fault).

**Claims 19 and 32**

Skaaning anticipates the fault diagnoses include recommended remedial actions (Skaaning: C5, L5-16; C8, L1-16; C8, 26-31).

**Claim 20**

Skaaning anticipates a user accessing the user access device is a customer (Skaaning: C8, L32-34).

**Claim 21**

Skaaning anticipates a user accessing the user access device is a customer support representative (Skaaning: C6, L22-40; if control is given to the experienced support agent, he is accessing the user access device).

Art Unit: 2129

**Claim 22**

Skaaning anticipates the fault relates to a technical product (**Skaaning:** Abstract, L1-2; C5, L32-33; a printer is a technical product).

**Claim 23**

Skaaning anticipates the fault relates to a technical service (**Skaaning:** C8, L32-56; a malfunction in a printer system is a fault in a technical service).

**Claim 24**

Skaaning anticipates the user access device is a personal computer (**Skaaning:** C8, L1-16, Fig. 1).

**Claim 25**

Skaaning anticipates the communication between the user interface module and the user access device is via the Internet (**Skaaning:** C8, L1-16, Fig. 1).

**Claim 33**

Skaaning anticipates the fault relates to a technical product or technical service (**Skaaning:** Abstract, L1-2; C5, L32-33; C8, L32-56).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which



Art Unit: 2129

said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26-27 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skaaning et al in view of Buenzli, Jr. et al (US Patent #6,535,865, referred to as **Skaaning**; US Patent #5,157,668, referred to as **Buenzli**).

#### **Claim 26**

Skaaning does not teach the fault is a defective circuit board.

Buenzli teaches the fault is a defective circuit board (**Buenzli**: abstract, L1-4, L15-17; C23, L35-37; an electronic circuit or unit is considered to be a circuit board).

It would have been obvious to one of ordinary skill in the arts at the time of the applicant's invention to modify the teachings of Skaaning by detecting a fault in a defective circuit board as taught by Buenzli for the purpose of determining if a component in the circuit board can be replaced to solve the problem or if the entire board should be replaced.

#### **Claim 27**

Skaaning does not teach the fault symptom query is directed to a determination of what type of defect the defective circuit board contains.

Buenzli teaches the fault symptom query is directed to a determination of what type of defect the defective circuit board contains (**Buenzli**: abstract, L15-17).

Art Unit: 2129

It would have been obvious to one of ordinary skill in the arts at the time of the applicant's invention to modify the teachings of Skaaning by making the fault symptom query directed to a determination of what type of defect the defective circuit board contains as taught by Buenzli for the purpose of determining what component in the circuit board is producing the fault so that it can be replaced.

### **Claim 35**

Skaaning teaches a knowledge base including a plurality of fault diagnoses and fault symptom queries wherein said fault diagnoses include diagnostic images, a description of the fault, and a likely cause of the fault (**Skaaning**: C6, L1-9; C8, L1-25; C8, L66-67, C9 L1-16; C35, L9-12; C43, claims 1 and 2; Figs. 1,2 and 4; the information stored on each node is a knowledge base with information on their respective functions (indicator node, cause node or troubleshooting node). The pictures presented to the user must be related to the suggestions or responses given by the troubleshooter so that the user can make his selection. The suggestion provide a description and a likely cause of the fault).

a decision tree module including a decision tree having a plurality of decision points each corresponding to one of the fault symptom queries and a plurality of resolution points each corresponding to one of the fault diagnoses, wherein each said potential response in the decision tree indicates one of the decision points or one of the resolution points and one of said decision points is identified as a starting decision point (**Skaaning**: C5, L5-24; C8, L1-16; C25, L23-67, C26 L1-2; Figs. 1,5,8,9,10A-10E and 11; a Bayesian network is a

Art Unit: 2129

decision tree module, decision points are nodes in the Bayesian network, queries are the questions made on each troubleshooting step and resolution points are the suggested actions to solve the problem which are stored in nodes in the network);

a user interface module for providing customer support, said user interface module being in communication with said decision tree module, said knowledge base and a user access device (**Skaaning**: C8, L1-22; Figs. 1 and 2; a video display is a user interface module and the customer PC is a user access device), said user interface module including instructions to implement a method  
Comprising:

designating the starting decision point as the next decision point (**Skaaning**: C25, L1-67, C26, L1-2; C33: 19-67, C34 L1-2; Figs. 6-9, 10A-10E and 11; designating the starting decision point as the next decision point is performed by the interactions between the arcs of the net when the tree is being searched to find a solution to the problem);

transmitting the fault symptom query corresponding to the next decision point to the user access device (**Skaaning**: C8, L1-16, C8, L26-31; Fig. 3, Fig. 12; providing suggestions to the user is transmitting fault symptoms queries corresponding to each decision point)

receiving a reply including one of the potential responses (**Skaaning**: C35, L5-36; Fig. 12; a reply is the suggestion made by the troubleshooter);

continuing said transmitting the fault symptom query and receiving a reply until said one of the potential responses indicates one of the resolution points,

Art Unit: 2129

wherein if said one of the potential responses indicates one of the decision points then said one of the, decision points is designated as the next decision point (**Skaaning**: C35, L5-36; Fig. 12; the process iterates until a solution is found. Asking questions designate another decision point); and

receiving all of the resolution points and comparing the fault to illustrative images associated with each of the resolution points in order to traverse the decision tree (**Skaaning**: C6, L1-9; C35, L9-12; Fig. 12; EN: the system must receive all of the actions of questions (resolution points) in order to search the Bayesian network to guide a user to solve a problem. Graphical images are used to guide the user to find a solution to the problem).

Skaaning does not teaches each said fault symptom query includes potential responses and images that correspond to the potential responses, one of said fault symptom queries being determining a type of defect, said images corresponding to said potential responses including a rim defect image and a resist plug defect image; and transmitting the fault diagnosis corresponding to said one of the resolution points to the user access device, said fault diagnosis including said type of defect.

Buenzali teaches each said fault symptom query includes potential responses and images that correspond to the potential responses, one of said fault symptom queries being determining a type of defect, said images corresponding to said potential responses including a rim defect image and a resist plug defect image (**Buenzli**: abstract, L15-24; C8, L48-61; C9, L55-67; C22, L44-68, C23, 1-27; C23, L61-66; Figs. 8 and 11a-11d; by troubleshooting a

Art Unit: 2129

circuit, queries are being made to locate the fault. A schematic of the block being tested will show the components in that block) and transmitting the fault diagnosis corresponding to said one of the resolution points to the user access device, said fault diagnosis including said type of defect (**Buenzli**: C22, L44-68, C23, 1-27; the defect is transmitted to the system response window).

It would have been obvious to one of ordinary skill in the arts at the time of the applicant's invention to modify the teachings of Skaaning by making each fault symptom query includes potential responses and images that correspond to the potential responses, one of said fault symptom queries being determining a type of defect, said images corresponding to said potential responses including a rim defect image and a resist plug defect image and transmitting the fault diagnosis corresponding to said one of the resolution points to the user access device, said fault diagnosis including said type of defect as taught by Buenzli for the purpose providing the user with a graphical representation of the system and the location of the fault so that isolation or correction of the fault can be made easier to the user.

#### **Claim 36**

Skaaning teaches transmitting a recommended remedial action based on the fault diagnosis to the user access device (**Skaaning**: C5, L5-16; C8, L1-16; C8, 26-31; C35, L5-36, Fig. 12).

**Response to arguments**

***Claim Rejections - 35 USC § 112***

7. In light of the amendments made on claims 27 and 35 the rejection under 35 USC § 112 is withdrawn.

***Claim Rejections - 35 USC § 102***

8. The Applicant's arguments regarding the rejection under 35 USC § 102 have been fully considered but are not persuasive

**In reference to Applicant's arguments:**

Skaaning fails to disclose at least the element "receiving all of the resolution points and comparing the fault diagnoses to illustrative images associated with each of the resolution points in order to traverse the decision tree", as recited in amended Claim 15. Accordingly, Skaaning does not anticipate Claim 15 because it fails to disclose each and every element of Claim 15. Claims 16-25 depend from Claim 15, and thus are believed to be allowable at least due to their dependency on Claim 15.

Claim 28 as amended includes the element "receiving all of the resolution points and comparing the fault diagnoses to illustrative images associated with each of the resolution points in order to traverse the decision tree", and thus is patentable over Skaaning for at least the reasons given above for Claim 15. Claims 29-33 depend from Claim 28, and thus are believed to be allowable at least due to their dependency on Claim 28.

Art Unit: 2129

Claim 34 as amended includes the element "receiving all of the resolution points and comparing the fault diagnoses to illustrative images associated with each of the resolution points in order to traverse the decision tree", and thus is patentable over Skaaning for at least the reasons given above for Claim 15.

**Examiner's response:**

As stated above in the rejection of claims 15, 28 and 34, Skaaning does disclose the limitation "receiving all of the resolution points and comparing the fault diagnoses to illustrative images associated with each of the resolution points in order to traverse the decision tree" on column 6, lines 1-9 and column 35, lines 9-12. The system must receive all of the actions or questions (resolution points) in order to search the Bayesian network to guide a user to solve a problem and graphical images are used to guide the user to find a solution to the problem.

**Claim Rejections - 35 USC § 103**

9. The Applicant's arguments regarding the rejection under 35 USC § 103 have been fully considered but are not persuasive.

**In reference to Applicant's arguments:**

As described above, Skaaning fails to teach or suggest at least the element "receiving all of the resolution points and comparing the fault diagnoses to illustrative images associated with each of the resolution points in order to traverse the decision tree", as recited in Claim 15 from which Claim 26 depends. The addition of Buenzli does not cure this deficiency. Therefore, Skaaning in

Art Unit: 2129

view of Buenzli does not render Claim 26 obvious because neither Skaaning nor Buenzli, alone or in combination, teach or suggest all of the elements of Claim 26. Claim 27 depends from Claim 26, and thus is believed to be allowable at least due to its dependency on Claim 15.

As described above, Skaaning fails to teach or suggest the element "receiving all of the resolution points and comparing the fault diagnoses to illustrative images associated with each of the resolution points in order to traverse the decision tree", as recited in Claim 35. The addition of Buenzli does not cure this deficiency. Therefore, Skaaning in view of Buenzli does not render Claim 35 obvious because neither Skaaning nor Buenzli, alone or in combination, teach or suggest all of the elements of Claim 35. Claim 36 depends from claim 35, and thus is believed to be allowable at least due to its dependency on Claim 35.

**Examiner's response:**

As stated above Skaaning teaches "receiving all of the resolution points and comparing the fault diagnoses to illustrative images associated with each of the resolution points in order to traverse the decision tree". When the Skaaning reference is combined with the Buenzli reference all of the elements of claims 26 and 35 are taught and motivation for the combination of the references has been provided.

***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for



Art Unit: 2129

reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Correspondence Information***

11. Any inquires concerning this communication or earlier communications from the examiner should be directed to Omar F. Fernández Rivas, who may be reached Monday through Friday, between 8:00 a.m. and 5:00 p.m. EST. or via telephone at (571) 272-2589 or email [omar.fernandez\\_rivas@uspto.gov](mailto:omar.fernandez_rivas@uspto.gov).

If you need to send an Official facsimile transmission, please send it to (571) 273-8300.

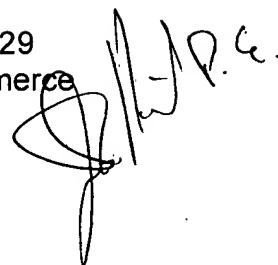
If attempts to reach the examiner are unsuccessful the Examiner's Supervisor, David Vincent, may be reached at (571) 272-3080.

Hand-delivered responses should be delivered to the Receptionist @ (Customer Service Window Randolph Building 401 Dulany Street Alexandria, VA 22313), located on the first floor of the south side of the Randolph Building.

Omar F. Fernández Rivas

Art Unit: 2129

Patent Examiner  
Artificial Intelligence Art Unit 2129  
United States Department of Commerce  
Patent & Trademark Office

A handwritten signature in black ink, appearing to be "J. P. C.", written over the printed name of the Patent Examiner.

Friday, August 18, 2006

Handwritten initials in black ink, appearing to be "OFR", located below the date.